DIETARY SUPPLEMENTS FOR PAIN: A CLINICIAN'S GUIDE

Whether we agree or not, our patients are taking dietary supplements for their pain. To best serve them, it is important for you to be able to counsel them about supplements they may be likely to try, whether you recommend them yourself or not. Pain is one of the main reasons people take dietary supplements, and there is a confusing array of products out there. This review is designed to teach you about the ones that are the most popular.

Supplements on the VA Formulary

To begin, let's focus on items that are on the VA formulary. These include omega-3's, vitamin D, and magnesium.

Omega 3's

These can be obtained either in the diet or as supplements. Fish oil is one of the main sources of omega-3. Surprisingly, research on omega-3 supplements and pain is limited. Some highlights:

- Taking doses of omega-3 at >2.7 gms daily reduces NSAID consumption in people with rheumatoid arthritis.[1]
- Omega-3 as a treatment for osteoarthritis (OA) is showing promise in "emerging research" (particularly, animal studies).[2] A 2016 study of 202 people with OA of the knee confused the issue somewhat when it found that both lower (450 mg/day) and higher (4.5 gm/day) doses of fish oil were superior to placebo. Curiously, the lower-strength dose seemed to have more of an effect at some time points.[3] Future studies are in process to clarify these findings.
- A 2010 case series (5 patients) concluded that omega-3 fatty acids were beneficial in treating a variety of forms of neuropathic pain.[4]
- A 2015 randomized trial involving 67 people with chronic headache confirmed major improvements in pain, reduction of psychological distress, and increased quality of life.[5]
- There are few studies regarding fibromyalgia and omega-3 supplementation.

Prescribing Tips – Fish Oil

- Go for 1 gm/daily of total DHA and EPA. This equates to about 3-4 gms of fish oil. Some people have GI upset with fish oil. Start at a low dose and increase the dose after a week or two.
- There are algae derived formulas for vegetarians.
- Flax oil is not very potent.
- Keeping the supplements cooled can decrease the "fish burps."
- Brand really matters – you can look at a website like www.ConsumerLab.com to get suggestions.
- In general, fish oil supplements are safer than the fish themselves.

Vitamin D

Vitamin D is quite safe and tends to have a number of uses. Many clinicians use it for chronic nonspecific musculoskeletal pain (CNMP) with reported success. However, a 2016 review concluded there is moderately good evidence against its efficacy.[6] This agreed with findings of a 2015 Cochrane review.[7] However, low vitamin D levels correlate with higher levels of pain sensitization.[8] Low vitamin D levels are also linked to higher degrees of statin-induced myalgia.[9]

Prescribing Tips – Vitamin D

- Because vitamin D supplements are very safe, it is worth considering them for general pain (or mood) complaints. Some patients do find it helpful.
- The patients who respond best are those with general body aches (malaise).
- Everyone argues over dose. 2,000 IU of D3 (cholecalciferol) is a reasonable dose for most adults. The reference intake for people over 70 is 800 IU, and for teenagers through age 70 is 600 IU.
- Very few foods naturally contain vitamin D at significant levels. In the US, many foods are fortified with it.
- 100 IU of D3 dosing daily is thought to raise 25-hydroxy vitamin D levels by about 1 nanogram/ml.
- D2 (ergocalciferol) and D3 (cholecalciferol) are thought to be similar in potency at standard doses, but D3 is more potent at higher doses.
- People with more skin pigmentation are at higher risk of deficiency. For lighter skinned people, 10 minutes of sun can provide more than 10,000 IU of D via the skin.
- Obese people may be at more risk for vitamin D deficiency.

Magnesium

10 studies of oral magnesium (Mg) and 11 of IV dosing found that magnesium reduces migraine frequency and intensity.[10] The odds ratio for oral migraine therapy leading to benefit ranged from 0.20 to 0.27. Systemic Mg provided when one receives general anesthesia seems to reduce postoperative pain scores.[11]

Prescribing Tips – Magnesium

- A good baseline dose is 6 mg/kg of Mg (dose will vary depending on which salt they take). A reasonable dose is 600 mg/daily, if the bowels can tolerate it.
- The amount of Mg listed on a supplement is the amount of elemental magnesium.
- There are a number of Mg salts one can take. Magnesium hydroxide (milk of magnesia) and Mg sulfate are more potent laxatives. Mg citrate, lactate, and aspartate are less so. Mg glycinate (chelated Mg), Mg gluconate, and Mg chloride, are highly soluble and also less likely to cause this side effect.
- Upper intake levels for Mg are 350 mg for adults, but many people will recommend higher doses for headaches (usually keeping dose under 2 gms and lowering it if diarrhea occurs).

Supplements That Are Foods

Other supplements, worth considering, can be purchased in the local grocery store.

Ginger

A 2015 review concluded that ginger extracts are clinically effective hypoalgesics with a better safety profile than anti-inflammatory drugs.[12] Ginger has done well in comparison to 400 mg of ibuprofen 3 times a day, but not in every study.

Prescribing Tips - Ginger

- Dose is 500-1000 mg of powdered root 2-3 times daily. Has rare GI side effects.
- A rule of thumb (finger?) is that the amount of ginger root equal to the length of your distal middle finger is about a 2 gm dose.
- It may be necessary to take ginger for a couple of months before it reaches full effect, at least in terms of OA.
- There is no evidence of an increase in anticoagulation in humans, though it is usually avoided before surgery and if one is taking anticoagulant medications.
- Over 5 gms/day can cause GI side effects.

Turmeric

Turmeric is quite safe and can lead to marked improvements in inflammation. Turmeric seems to work through altering arachidonic acid metabolism, among other ways. One active ingredient (often sold separately) is curcumin. A 2014 study of 367 patients with knee OA found that extracts of curcumin were as effective as ibuprofen with fewer GI side effects (but similar side effects otherwise).[13] A 2016 systematic review concurred, but noted that further, more rigorous studies are needed.[14]

Prescribing Tips - Turmeric

- Taking pepper along with turmeric boosts curcumin's bioavailability.
- 500 mg three times daily of the powdered root is a good starting dose. People can tolerate several grams daily, but many patients do well taking it at this dose.
- It doesn't work for everyone, but there are frequently remarkable improvements for people, especially those with osteoarthritis.

Other Supplements Your Patients May Ask About[15]

The following are also popular supplements with patients.

Supplement	Efficacy	Precautions
Herbal Remedies		
Avocado[16]/Soy[17] Unsaponifiables	Decreased NSAID use in people with knee and hip OA Stimulates collagen growth	Takes 2 months to full effect (and 2 months to wear off) Not in banana, chestnut allergy
Boswellia (Indian frankincense)[18]	2013 review said it had better evidence than other anti-inflammatory supplements[19]	Rare GI effects – very safe 333 mg extract three times a day
Cat's Claw[20]	Freeze dried extract lowered knee OA pain with activity Modest benefit in RA	Generally safe in research May lower blood pressure May inhibit CYP 3A4
Devil's Claw[21]	Rated as "Good" scientific evidence for inflammation by Natural Medicines	Safer than NSAIDs Rare side effects Avoid with duodenal ulcers May lower glucose May increase bleeding
Phytodolor (mixture of aspen, ash, and goldenrod)[22]	Rich in salicylates Reduced drug use in rheumatological disease Comparable to diclofenac in one OA study	No reports of adverse effects Avoid in pregnancy Theoretically should have effects like aspirin
Willow Bark[23]	Some benefit for mild pain, not looking as promising in recent reviews	Seems not to have same side effects as aspirin (which is derived from willow bark) Caution in asthma patients
Non-Herbal Supplements		
Glucosamine (Sulfate or HCl)[24]	Most promising studies are for sulfate salt, NOT hydrochloride, which is more commonly sold	Safe, but can become costly 500 mg three times daily Need to use for a few months Doesn't increase glucose
Chondroitin Sulfate[25]	Not as promising as glucosamine; usually mixed with it	Avoid in prostate cancer Comes from animal cartilage
Methylsulfonyl-methane (MSM)[26]	Seems to help with some functional measures (not all) in OA patients Not clear how clinically meaningful benefits are	Tends to be very safe 1.5-6 grams divided into 2-3 doses Sometimes said to help with 'sulfur deficiency' which isn't real

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